

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	3mΩ@10V	160A

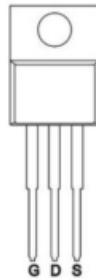
Feature

- Fast Switching
- Low Gate Charge and Rdson
- 100% Single Pulse avalanche energy Test

Applications

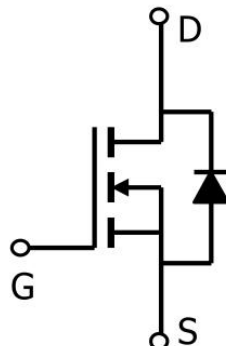
- Power switching application
- DC-DC Converter
- Power Management

Package

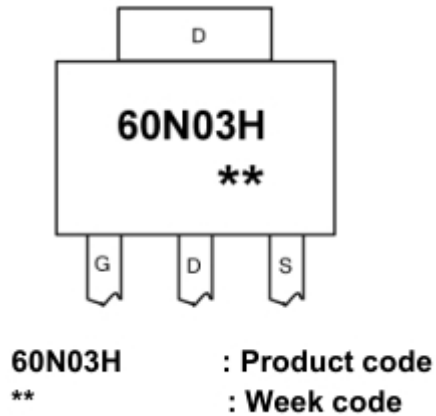


TO-220(G:1 D:2 S:3)

Circuit diagram



Marking



Absolute maximum ratings

(T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain source voltage	V _{DS}	60	V
Gate source voltage	V _{GS}	±20	V
Continuous drain current(Tc=25°C)	I _D	160	A
Pulsed drain current	I _{DM}	640	A
Power dissipation(Tc=25°C)	P _D	220	W
Single pulsed avalanche energy ¹⁾	E _{AS}	1296	mJ
Thermal resistance, junction-case	R _{θJC}	0.57	°C/ W
Operation and storage temperature	T _J , T _{STG}	-55~ +150	°C

Electrical characteristics

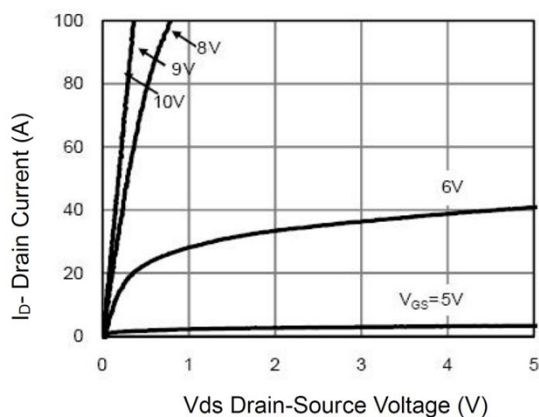
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV (BR)DSS	V _{GS} = 0V, I _D =250μA	60			V
Drain-source leakage current	I _{DSS}	V _{DS} =48V,V _{GS} = 0V			1	uA
Gate-source leakage current	I _{GSS}	V _{GS} = ±20V,V _{DS} = 0V			±0.1	uA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0	3.0	4.0	V
Drain-Source On-State Resistance ²	R _{DS(on)}	V _{GS} =10V, I _D =75A		3	3.8	mΩ
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f=1MHz		8520		pF
Output capacitance	C _{oss}			687		
Reverse transfer capacitance	C _{rss}			573		
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} =30V , V _{GS} =10V, I _D =75A		164		pF
Gate-Source Charge	Q _{gs}			38		
Gate-Drain Charge	Q _{gd}			61		
Turn-on delay time	T _{d(on)}	V _{GS} =10V, V _{DD} =30V, R _L =0.4Ω, R _G =2.5Ω		25		nS
Rise time	T _r			23		
Turn-off delay time	T _{d(off)}			90		
Fall time	T _f			38		
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V _{SD}	V _{GS} =0V ,I _S =1A			1.2	V

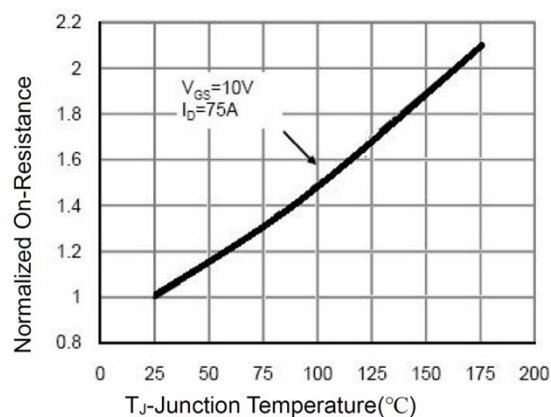
Note :

1. E_{AS} is tested at starting $T_j = 25^{\circ}\text{C}$, $V_{DD} = 50V, V_{GS} = 10V, L = 0.5\text{mH}, R_g = 25\text{m}\Omega$;

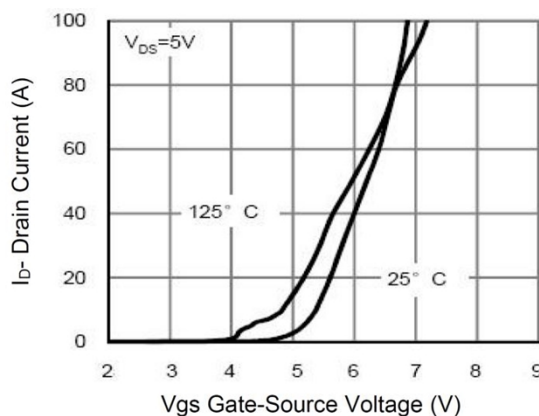
Typical Characteristics



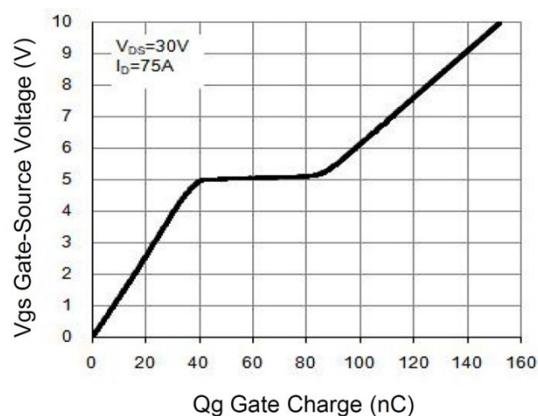
Output Characteristics



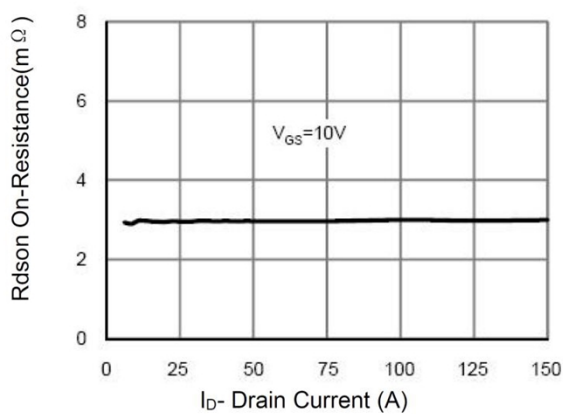
Rdson-Junction Temperature



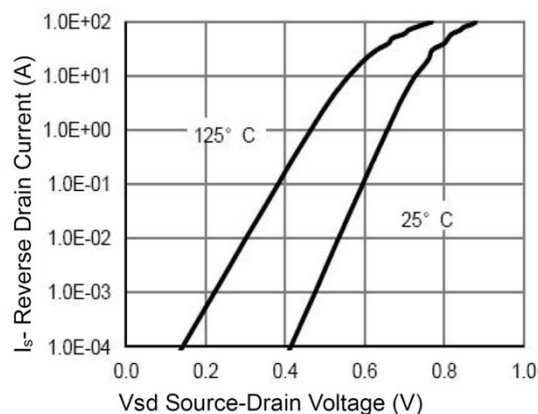
Transfer Characteristics



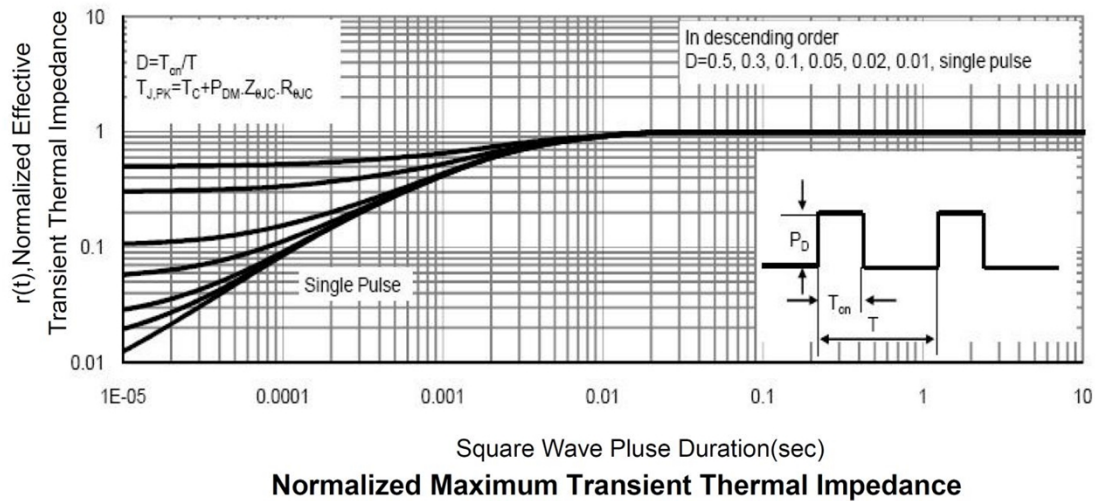
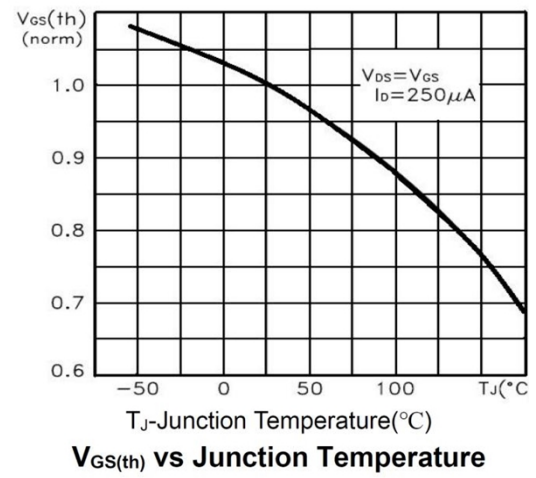
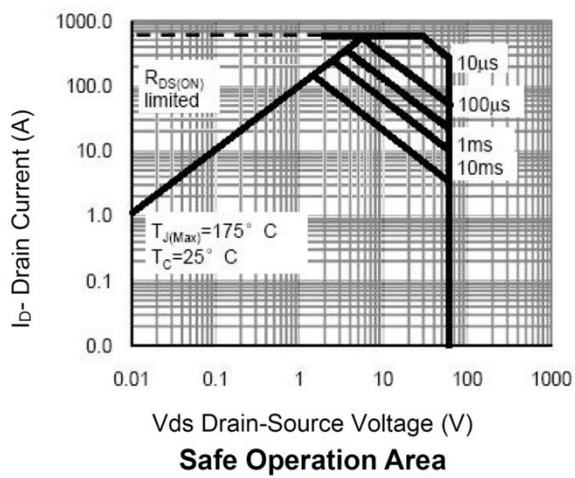
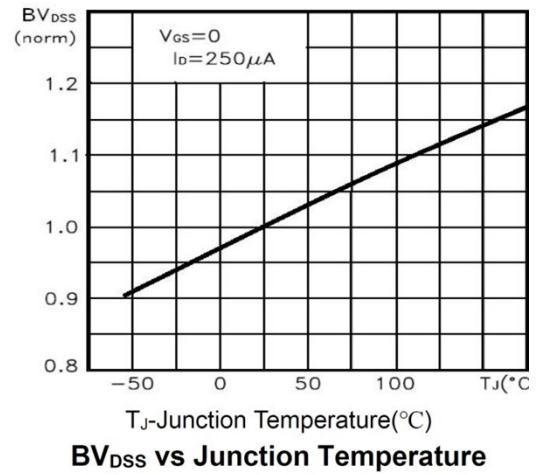
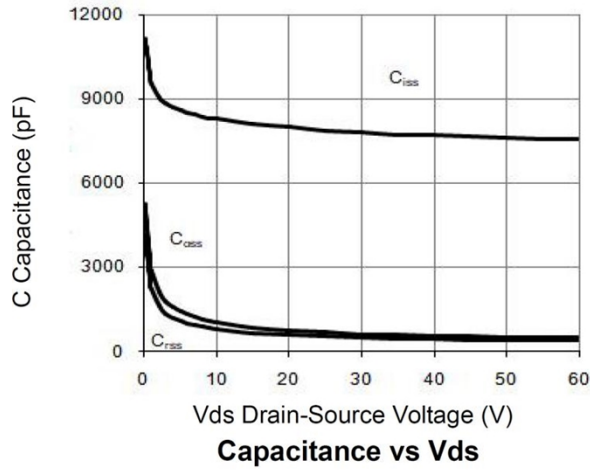
Gate Charge



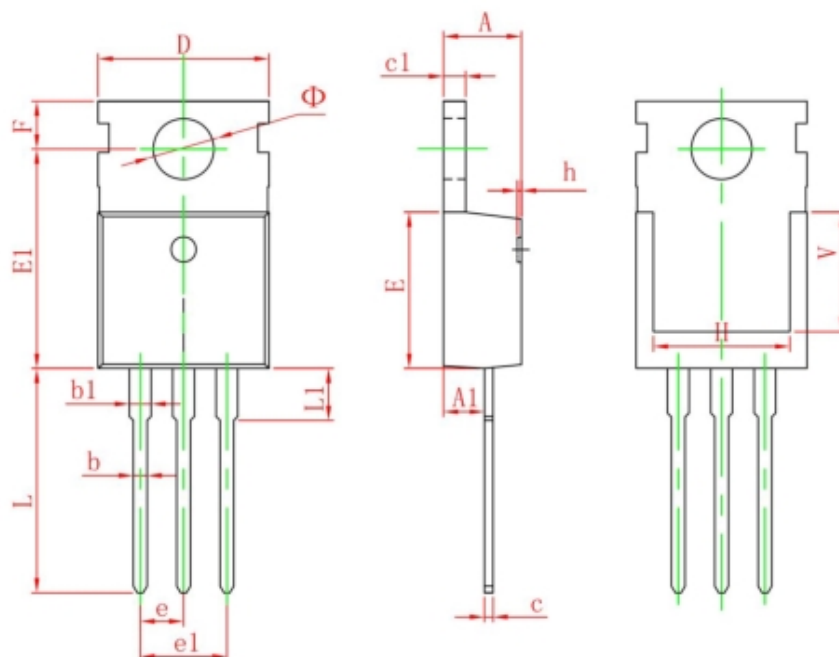
Rdson- Drain Current



Source- Drain Diode Forward



TO-220-3L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.400	4.600	0.173	0.181
A1	2.250	2.550	0.089	0.100
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.330	0.650	0.013	0.026
c1	1.200	1.400	0.047	0.055
D	9.910	10.250	0.390	0.404
E	8.950	9.750	0.352	0.384
E1	12.650	13.050	0.498	0.514
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
F	2.650	2.950	0.104	0.116
H	7.900	8.100	0.311	0.319
h	0.000	0.300	0.000	0.012
L	12.900	13.400	0.508	0.528
L1	2.850	3.250	0.112	0.128
V	6.900 REF.		0.276 REF.	
Φ	3.400	3.800	0.134	0.150